2: Lee T-5 (1855-1858) 1957
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doubt whether there is a race on the face of the whole earth that equals the Comanches. They will lie along the sides of their horses, while under full speed, directing their course at the same time and discharging arrows from under their necks with deadly effect, in a manner astonishing to witness.

If a deer is captured, he brings it in on his horse, throws it to the women whose business is to dress and cook it. If he kills a mustang or a buffalo, he rides into the village and informs his squaw where the carcass may be found, who straightway mounts and goes out in search of it—skins it —cuts the flesh into strips, and returns.

While the men are thus indolent, the women are remarkable for their industry. Besides attending to the menial duties of the camp, working in the fields during the planting and harvesting seasons, they perform extraordinary labors in preparing buffalo hides and bringing them into the soft and pliant condition in which we see them. To do this properly requires about six weeks, and the process may be new to many of my readers.

When the hide is first brought in green, it is placed upon a log so hewed that it presents a flat surface, perhaps a foot in width. With an instrument similar to a common adze, the squaws cut away all the flesh and part of the bulkiest portions of the hide, until the whole presents a uniform thickness. This is a long and tedious operation. They are then stretched upon frames, and rubbed with a kind of pumice stone until the surface becomes furzy. If it should dry in this state, however, it would be hard, stiff and unpliant. To avoid this, they use a preparation composed of basswood bark pounded very fine and mixed with the brains of the deer or buffalo, which is applied day after day until the skin is thoroughly saturated, when it is soft and flexible.

3:Wallace & Hoebel E-4, 5 (1933, 1945) 1952
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meat. They raised no vegetables of their own, yet they came from a background of food gatherers and did not forget their heritage. They utilized a large number of vegetables and fruits. Women did most of the seeking for plants, but even the men knew what was growing about them and how to use it. G. G. Carlson and V. H. Jones have given the expert judgment that "the average Comanche has a very good knowledge of his plant environment and particularly of those plants which are or have been of value to his tribe."[12] Fifty-two wild plants with their uses as given by Comanche informants in the work of the Santa Fé Laboratory group are listed by Carlson and Jones. Of these, twenty-seven different plants were used as food. It would seem that this number would compare rather favorably with the variety of fruits and vegetables eaten by most Americans today. Twenty-two of the listed plants were used for medicinal effect in the Comanche native pharmacology.

The facts, when marshaled, simply do not support the statement of Captains R. B. Marcy and G. B. McClellan that fresh meat was the only food of the Comanches "with the exception of a few wild plants which they find on the prairies."[13]

Among the fruits, the persimmon, mulberry, "haws," wild plums, grapes and currants, juniper berries, hackberries, prickly pear cactus, and sumac were gathered. Persimmons were eaten fresh and also dehydrated and stored. For storing, the persimmon was beaten to a pulp, the seeds removed, and the paste sun-dried in cakes. The cakes were later soaked in water and used in a variety of ways. Plums were eaten fresh or stored for winter use in a similar manner, as were also grapes. Prickly pears were sun-dried for winter use, and hackberries were pulped, mixed with fat, and roasted in balls on the end of a stick.

Pecan nuts were an obvious delicacy for any Indians living in Texas or Oklahoma, and if times were hard, the Comanches shelled and boiled the acorn of the blackjack oak.

For starchy substance all Comanche bands dug and ate the tuberous roots of Indian potato, either raw or boiled—and one band, remember, was even called the *Yep-eaters*. Four or five other root plants,

[12] G. G. Carlson and V. H. Jones, "Some Notes on Uses of Plants by the Comanche Indians," *Papers* of the Michigan Academy of Science, Arts, and Letters, Vol. XXV (1940), 518.

[13] Marcy, *Exploration of the Red River of Louisiana in the year 1852*, 111.

3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
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The poles were long, straight, and slender, usually of pine or cedar, peeled, seasoned, and pared down to a suitable diameter. They were sometimes pointed at the butt to prevent slipping on the ground. They varied in length from ten to twenty feet, depending on the size tipi desired. Robert G. Carter observed that hundreds of Antelope band poles were of cedar, approximately fourteen feet in length.[82]

Like the Blackfeet, Shoshones, Utes, Crows, Hidastas, Omahas, and others, the Comanches used four poles as a foundation. Many tribes, including the Cheyennes, Gros Ventres, Arapahos, Pawnees, and Kiowas, on the other hand, used a three-pole foundation. The projecting tops of the poles of a tipi erected on a three-pole foundation have a spiral appearance, while the four-pole base tends to group them on the sides. It seems evident from the fact that the Comanches used a four-pole foundation like the Shoshones, Utes, and other northern tribes, instead of the three-pole foundation of the Kiowas, Pawnees, and other southern neighbors, that they first adopted the tipi while still in their northern environment.

In erecting the tipi, the four poles were first tied together near the top and set upright. The butt ends of the poles were then pulled out and evenly spaced in a circle. Against this foundation were stacked the remaining poles, all tied together near the top with thongs of buffalo hide. They were set diagonally into the ground, as deep as two or more feet for a permanent dwelling, and three to four feet apart in a circle. Greater security was sometimes obtained by means of short stakes set at an angle across the lodge poles a few inches above the ground. A tipi thus set would withstand most of the strong winds that swept frequently across the High Plains.

The poles served as rafters. Buffalo hides, carefully fitted and firmly sewed together with sinew, were hoisted with a single pole from inside the framework. Women standing on each other's shoulders fastened the covering at the top. The covering was pinned up the front with wooden skewers the size of a lead pencil. From ten to seventeen buffalo hides were required to make a covering for the usual lodge, and rarely was a tipi larger than twenty skins, even if as many as twenty people were sheltered within. This number compares with an estimated average of fourteen and a maximum of

[82] Carter, *On the Border with MacKenzie*, 197; Lee, *op. cit.*, 128.

3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
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into Texas. Bois d'arc is commonly recognized as one of the hardest, finest, and most durable of timbers. If it was not accessible, ash, white elm, ironwood, mulberry, or hickory were used, hickory being a highly esteemed bow wood.

When selecting bow wood, the Comanche chose a small upright sapling or a piece of timber with perfectly straight grain from a large tree. The heart of the tree was never used. The timber had to be straight and as free as possible from knots. It had to be seasoned or dried and not allowed to warp in the process. It was generally worked down to approximately the desired size while still green, since green wood worked more easily. Then followed the seasoning process, requiring weeks or months for completion. With fair use a properly made bow would last for many years, but since it might be accidentally broken at any time, timber in various stages of preparation was kept on hand. After the bow wood had seasoned, it was scraped and shaped to proper dimensions and rubbed with fat or brains to make it pliable. Then the stick was put aside, preferably in a warm place, to be worked again in a few days or weeks.[7] When worked to the proper finish, it was rubbed until it acquired a polish. Glue was spread over the bow, and fresh or wet sinew from the back of a buffalo bull or deer was applied. After the sinew had been wrapped, another coat of glue was applied and smoothed down by thorough rubbing. The bow was then laid aside until perfectly dry. In drying, the fresh sinew would shrink tightly to the wood and, with the glue, made the whole very strong and tough. A common wooden bow could be made in three days, but a week to a month was usually required to finish a fancy one.

Glue for bows and arrows was made from chippings from the rawhide of the neck of a buffalo bull, from the shavings cut from a buffalo bull hide in the process of thinning it down, or from horns and hoofs. These were boiled with water to make a strong glue. It was lobbed upon a smoothly whittled stick of mulberry or other wood and allowed to cool. The glue stick was carried in the bow case with the arrows for ready and frequent use. By softening in hot water it was ready as an instant mender for almost anything.

[7] This method is still used in East Texas for making handles for hammers, axes, shovels, and the like.

3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
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795 had all but forsaken them. Their accustomed guardian spirits, and even the Sun, lacked sufficient power to turn back the whites and to preserve their old tribal way of life; they needed and sought new power. The answer was peyote.

It was strong power, and it could always be invoked. Visions could always be had through peyote; it was reassuring to The People.

Peyote worship developed as essentially a group experience. It always has been, and still is. The old camp life was broken up. The Comanches were having to learn to live on isolated farmsteads. They yearned for the companionship of each other. In the peyote meetings they were brought together in the warm intimacy of the sacred tipi. They sat shoulder to shoulder in common experience. There they knew that they were not alone, and they could feel that all was not lost.

R. N. Richardson records the general belief that peyote was first used by the Comanches near Fort Sill, about 1875, shortly after they had been confined on the reservation.[19] D. P. McAllester, in his excellent study of Comanche peyote music, also sets the eighteen seventies as the period in which the Comanches first took up peyote.[20] This, it is true, is the time when the use of peyote in the form of a religious cult really took hold among the Comanches. Until their collapse and the failure of their venture with Coyote Droppings there was no functional reason for them to rely on a drug as the means to supernatural power, although they had access to it and, indeed, had used it in a limited way for some time.

There is ample evidence in the data given by Post Oak Jim, Breaks
● [824] Something, White Wolf, Kɔwino, and Frank Moeda to make it quite certain that the Comanches "knew" peyote before the middle of the nineteenth century. In those days it was used exclusively as a war medicine—especially as an aid in seer-seeing to determine what dangers to expect or where to find horses or enemies.

Peyote, a small, gray-green, spineless, napiform cactus, is botanically known as *Lophophora williamsii*. It contains pharmacologically a complex number of alkaloids capable of producing a variety of physiological effects, including visual and auditory hallucinations, as well

[19] Richardson, *The Comanche Barrier to South Plains Settlement*, 34, n.55.
[20] D. P. McAllester, *Peyote Music*, 13.

5: Carlson & Jones E, N-4, 5 (1933)1939
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114 The specimens which were collected have been deposited in the Ethnobotanical Laboratory of the Museum of Anthropology, University of Michigan (catalog numbers 14398–14450).

Mr. Carlson is responsible for the field notes, native terms, and phonetics. Dr. Waldo R. Wedel coöperated with him in the collection of the field data. The identification of the plants, documentation, and comparative data are primarily by Mr. Jones. Some assistance in identifications was received from Dr. J. H. Ehlers and Mr. Alfred F. Whiting.

824 121 177 Profitable investigations of aboriginal uses of plants are practically impossible among many Indian tribes because of their removal to reservations away from their native habitats or because of long contact with the white man and almost complete assimilation of his culture. This is not true of the Comanche, for although probably originally a northern Plains tribe they are now located in the same general region in which they were found by the first white explorers in the area (19, pp. 59–60), and, although they have been in fairly close contact with the white man for over a hundred years, their conversion to "civilization" has not been of such completeness or of such long standing that all their recollections of old times have been lost. The average Comanche has a very good knowledge of his plant environment and particularly of those plants which are or have been of value to his tribe.

824 121 This Comanche knowledge of useful plants and the fact that our list, although not extensive, could be compiled in a very short time would seem to argue against the prevalent opinion that the typical Plains tribes depended but little on them. While we are quite willing to concede that the Comanche were primarily hunters and that they relied largely on game for food, clothing, and the satisfaction of other wants, our data seem to indicate that this side of their life may have been overemphasized and their dependence on plants neglected. We feel that with additional field work the present list of Comanche economic flora could be readily amplified, and, further, that the ethnobotanical approach would be a profitable one among various other Plains tribes. Gilmore's monograph on the uses of plants by the Indians of the Missouri River region (7) demonstrates the great importance of plants in the lives of these sedentary agricultural tribes of the prairies.

114 Such data as exist concerning the ethnobotany of the tribes of

5: Carlson & Jones E, N-4, 5 (1933)1939
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the plains proper have been gathered chiefly as incidental parts of larger ethnographic studies, are generally meager, and are widely scattered. Two notable lists of plants used by Indians of the northern Plains are those of Grinnell for the Cheyenne (9) and McClintock for the Blackfoot (13). For the tribes of the southern Plains there is almost nothing available.[1] It is to assist in filling this hiatus in southern Plains ethnobotany that this paper is offered.

The data have been tabulated in order to present the material in compact form and to provide a convenient listing of plants by scientific name, common name, Comanche name, or by use (Table I). In the discussion the plants are arranged according to function, i.e. nutritive, medicinal, technological, and the like. Whenever convenient, identical or similar uses of the same or related plants by other tribes are pointed out. A small amount of data on Comanche uses of plants is drawn from other sources. We are grateful to Dr. E. Adamson Hoebel for permission to include some of his unpublished notes on plant names and plant uses of the Shoshone Indians, collected among the northern Shoshone of the Fort Hall Reservation, Idaho, in 1934.

The phonetic alphabet employed in recording the Comanche plant names is that of the International Phonetic Association. Since this alphabet is in common use and should be readily available to the reader it is not reproduced here.[2] We are further grateful to Dr. Hoebel for assistance in checking the phonetics of plant names.

Wissler (26, pp. 218–219) lists among the chief traits of the typical Plains tribes "the dependence upon the buffalo or bison, and the very limited use of roots and berries." Marcy and McClellan (15, p. 102) state that fresh meat was the only food of the Comanche "with the exception of a few wild plants which they find on the prairies." Our data seem to indicate that rather full use was made of the available flora. Many fruits and berries were eaten and must have offered a welcome variation to the monotony of the meat diet. Nuts, starchy roots, bulbs, and various other plant parts were also utilized. Some of these offered only fresh seasonal food, and others

[1] Since this paper was written a monograph by P. A. Vestal and R. E. Schultes has appeared in which over a hundred Kiowa economic plants are discussed (*The Economic Botany of the Kiowa Indians as It Relates to the History of the Tribe*, Botanical Museum, Cambridge, Mass., 1939, 110 p.).

[2] For a slightly modified form of this alphabet see Bloomfield (2, p. 547).

[Text continues on p. 526.—Analyst]

5: Carlson & Jones E, N-4, 5 (1933)1939
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TABLE I

PLANTS USED BY THE COMANCHE INDIANS

Scientific name	Catalog no.	Common name	Comanche name	Comanche use
Allium spp.	No specimen	Wild onions	pakøik, large onion t?diekøik, small onion	Bulbs roasted and eaten
Ambrosia psilostachya DC.	14425	Western ragweed	wɔanatɛu	No use known to informant
Amorpha angustifolia (Pursh.) Boynton	14433	False indigo	ɛshaʌiaβi˅	No use known to informant
Andropogon scoparius Michx.	14413	Little bluestem grass	ekɔnip	Stems used as switches in the sweat lodge; ashes from stems used for treating syphilitic sores
Argemone intermedia Sweet	14443	Prickly poppy	pitsitoʌa	Sore eyes treated with sap
Artemisia filifolia Torr.	14410	Silvery wormwood	pasiwonɔpohɔβi˅	As mattress in childbirth; as cushion in tipi
Artemisia ludoviciana Nutt.	14415	Lobed cudweed; white sage	pohɔβi˅	Known to be used but precise use not known
Brayodendron texanum (Scheele) Small	No specimen	Mexican persimmon	dunaseika	Fruits eaten
Camassia esculenta (Ker.) Robinson?	No specimen	Wild hyacinth; camass	sikoı	Roots eaten raw
Carya illinoensis (Wang.) K. Koch	14448	Pecan	nakutβai	Nuts eaten; leaves used in treatment of ringworm

Celtis laevigata Willd.	14435	Southern hackberry	natɔokwɜ; mirtsonʌ́	Fruits mixed with fat and eaten
Cephalanthus occidentalis L. ..	14417	Buttonbush	pɐɔ́tai	Game sticks made from wood
Cirsium undulatum (Nutt.) Spreng.	14412	Thistle	tɜɜn	Roots eaten; infusion of roots used as medicine for gonorrhea
Cornus asperifolia Michx.	14430	Rough-leaved dogwood	ɖarioβi	Arrow shafts made from stems
Coryphantha sp.	14403	Cactus	Not recorded	Unfaithful wives punished with spines
Crataegus sp.	14421	Thornapple; locally called "red haw"	ʈidiamɔwo:	Fruits eaten
Crataegus sp.	14416	Thornapple; locally called "black haw"	tʊ́poka, fruit wɔkwe'kate, tree	Fruits eaten; inner bark chewed as gum
Croton monanthogynus Michx.	14446	Croton weed	guβsimawa	Leaves mixed with animal brains for use in tanning
Cymopterus acaulis (Pursh.) Rydberg?	No specimen	Cymopterus	tun'ha:	Rootstocks eaten
Diospyros virginiana L.	14436	Persimmon	nase'ka	Fruits eaten fresh or dried
Echinacea sp.	14408	Purple coneflower	ɖukunɜnatsu	Roots used in treating sore throat and toothache
Elymus sp.?	14427	Rye grass	puitsaseni	No use known to informant
Eriogonum longifolium Nutt. .	14429	Eriogonum	ekanatsu; ekanaʎ́pa	Stomach trouble treated with infusion of roots

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TABLE I (*Continued*)

Scientific name	Catalog no.	Common name	Comanche name	Comanche use
Gutierrezia sarothrae (Pursh.) B. & R.	14431	Snakeweed	sanaweha; ohoya	Brooms made of stems; leaves used in treating whooping cough
Helenium autumnale L.?	14422	Sneezeweed	tidikwɔbam	Used in bath for treatment of fever
Helenium microcephalum Gray	14411	Sneezeweed	natsa^{a}ksi	Used to induce sneezing in order to clear nasal passages or to expel afterbirth
Hoffmanseggia Jamesii T. & G.	14419	*Camote de ratón*	pitsamu	Tubers eaten
Ilex sp.?	No specimen	Holly; yaupon	Not recorded	Beverage made from leaves
Juglans nigra L.	No specimen	Black walnut	muβitai	Nuts eaten; leaves used in treatment of ringworm
Juniperus virginiana L.	14440	Juniper; red cedar	ekawaip^{v}	Fruits eaten; smoke from leaves thought to have purifying effect
Lespedeza capitata Michx.	14441	Bush clover	puhihuβi^{v}	Beverage made from leaves
Liatris punctata Hook.	14449	Button snakeroot	ataβitsanoi	Roots chewed for juice; remedy for swollen testes
Lophophora Williamsii (Lem.) Coulter.	No specimen	Peyote	Not recorded	Used in ceremonies for narcotic effect
Maclura pomifera (Raf.) Schneider	14399	Osage orange; *bois d'arc*	ohahupi^{i}	Bows manufactured from branches; infusion of roots used in treatment of sore eyes

Malvastrum coccineum (Pursh.) A. Gray.	14450	Red false mallow	yɔkanatsu	Infusion of plant used for reducing swellings
Morus rubra L.	14434	Red mulberry	etehupᵉ; sɔhɔβoko	Fruits eaten
Nelumbo lutea (Willd.) Pers.?	No specimen	Yellow lotus	keʎiats	Roots boiled and eaten
Nymphaea advena Ait.?	No specimen	Yellow pond lily	keʎiats	Roots boiled and eaten
Opuntia sp.	No specimen	Prickly-pear cactus	wɔkwɔsi	Fruits eaten
Petalostemum purpureum (Vent.) Rydb.	14400	Purple prairie clover	pakɔitɔ	Roots chewed for sweet flavor
Prosopis glandulosa Torr.	14447	Mesquite	namoβitsɔni; natsɔkwe	Meal from pods eaten; leaves used to neutralise stomach acidity
Prunus angustifolia Michx.	14444	Chickasaw plum	Not recorded	Fruits eaten fresh or stored
Prunus spp.	No specimen	Wild plums	yusɔkɔ, early plum parawasɔkɔ, late summer plum kusisɔkɔ, fall plum natsɔmɔ, dried plum as it falls to the ground suikui, one particular plum	Fruits either eaten fresh or dried and stored for later use
Psoralea hypogea Nutt.?	No specimen	Indian breadroot	ɛ'kakoni	Roots eaten raw

TABLE I (*Concluded*)

Scientific name	Catalog no.	Common name	Comanche name	Comanche use
Quercus marilandica Muench.	14442	Blackjack oak; barren oak	ɖuhuɪpᵛ	Acorns eaten; leaves used as cigarette wrappers
Quercus sp.	No specimen	Oak	pasaponi	Acorns eaten; trunks used for fence posts
Rhus glabra L.	14420	Smooth sumac	ɖimɔyoᵛ	Fruits eaten by children; leaves added to tobacco for smoking
Rhus trilobata Nutt.	14438	Ill-scented sumac; skunkbush	ɖatɔipᵛ	Bark used in treating colds
Ribes odoratum Wendl.	14439	Wild currant	huaβɔkoɪ	Fruits eaten
Salix sp. (Salix nigra?)	14445	Willow	ohasɔhɔβᵛᵛ	Sores eyes treated with ashes
Sapindus Drummondii H. & A.	14432	Soapberry	ɔtomitsɔnaɪ	Arrows for *aratsi* game made from stems
Smilax bona-nox L.	14414	Greenbrier	ʈamɔtsoi	Leaves used as cigarette wrappers
Solanum sp.	14424	Nightshade	dɔɪpɔtɔtsi	Used in a general tonic and tuberculosis remedy
Sophora secundiflora (Orteg.) Lag.	No specimen	Mescal bean	Not recorded	Beans used as ornaments, possibly for ceremonial purposes
Typha latifolia L.	No specimen	Cattail	ʈisbumi	No use known to informant
Vitis spp.	No specimen	Wild grapes	Not recorded	Fruits eaten fresh or dried for storage
Yucca louisianensis Trelease	14418	Soapweed; yucca	mumutsi	Roots used as soap
Zanthoxylum americanum Mill.	14398	Prickly ash; toothache tree	ʞunɔnatsu	Bark used as medicine for fever, sore throat, and toothache

Unidentified (fam. Cactaceae) *	No specimen	Cactus	eka mitsa:	Probably eaten
Unidentified	14401		itse; ʧimǝyhǝ	No use known to informant
Unidentified	No specimen		kusiipoko	Berries eaten
Unidentified	14406		kusiwǝna	No use known to informant
Unidentified	14426		mawitsǝkᵛ	Decoction used in treatment of constipation and gonorrhea
Unidentified (fam. Labiatae)	14423		nemeʎisas	Leaves used as perfume
Unidentified	No specimen		paiyap	Roots roasted or boiled and eaten
Unidentified	14400		pehenatsu; peheʎ	Used to check menstrual discharge
Unidentified	14437		poiya	Decoction of leaves used in treatment of fever
Unidentified	No specimen		qǝtanarixka	"Roots" roasted in fire and eaten
Unidentified	No specimen		ɐehetsitaina	Roots boiled or roasted and eaten
Unidentified	No specimen		taƀaxko	Roots cooked with fat to make soup
Unidentified	No specimen		totox'd	Tubers eaten
Unidentified	No specimen		tsuns	Roots roasted and eaten
Unidentified (fam. Cactaceae)	No specimen	Cactus	Not recorded	Fruits eaten

* Obtained in Texas.

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824 262 were preserved for later use. The manner of preparation and storage is of considerable interest.

824 262 251 The fruits of the persimmon (*Diospyros virginiana*) were eaten fresh or were dried and stored for future consumption. The persimmon was commonly used in this manner by various tribes in the southern prairies and in the Southeast, and it is frequently mentioned in early historical accounts. The common method of preparation for storage seems to have been to beat the ripe fruits to a pulp, remove the seeds, and dry the paste. The cakes thus formed were later softened in water and prepared in various ways for eating. The persimmon has achieved little commercial importance, but is still widely used and esteemed by Indians and whites wherever it is available. An informant also described a black persimmon (Comanche: *dunaseika*) obtained in Texas and Mexico. This was doubtless the Mexican persimmon (*Brayodendron texanum*), which occurs from central Texas southwestward into Mexico.

The fruits of the mulberry (*Morus rubra*) were eaten fresh, when ripe, but no attempt was made to store them. This species is the one most generally preferred by Indians, from the Iroquois country to Kansas and Missouri and southward.

The fresh ripe fruits of two hawthorns or "haws" (*Crataegus spp.*) were eaten by the Comanche. According to an informant, one should shout like a wolf before partaking of them, or he will be sure to get stomach-ache and constipation. An indication of the wide use of Crataegus fruits is a list, compiled by Yanovsky (27, pp. 30–31), of eleven species used by various tribes of Indians from the eastern states to California and British Columbia.

The Comanche names for several wild "plums" were recorded, including designations for early plums, late summer plums, and fall plums. It is quite likely that some of the "plums" are wild cherries or chokecherries. Only one was collected, the Chickasaw plum (*Prunus angustifolia*). The fruits of this species were either eaten fresh or stored for winter use. Another kind of plum (Comanche: *su:kui*) was also said to be stored after the seeds had been removed and the fruits dried on a hide in the sun. Later they were boiled in water and eaten. In the winter the Indians sometimes obtained [222] plums by tracking pack rats to their nests and taking the hoarded supply.

Several species of wild grapes (*Vitis spp.*) were available to the

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Comanche and were either eaten fresh or dried in the sun and stored. The dried fruits were dampened, worked into cakes, and baked, fat sometimes being added in the process. Wild currants (*Ribes odoratum*) were eaten fresh, but were not preserved, as they were among many tribes. Another fruit (Comanche: *kusi:poko*) was not seen, but was described as being black, and round, like a grape, and was said to be eaten fresh. Children were reported to be very fond of the sour acid fruits of the sumac (*Rhus glabra*), and various species were eaten by Indians wherever sumac was available.

The berries of the juniper or red cedar (*Juniperus virginiana*) also served as food on occasion, the practice of eating juniper berries of various species being common among the Indians of the Southwest and elsewhere. The Comanche name for the red cedar was given as *ekawa:p*^{v}, and it was explained that *eka* is the term for "red." No etymology of *wa:p* was obtained. To judge from Chamberlain's discussion (6, pp. 63–64), *wap* seems to be a root word for "cedar" in the Shoshonean languages. If this is the case, then the Comanche term *ekawa:p*^{v} is an exact equivalent of the colloquial English term "red cedar" for the same plant.

The succulent fruits of prickly-pear cactus (*Opuntia sp.*) were eaten fresh and were also dried for winter use. No specimens were collected, but the descriptions by informants leave no doubt as to the identity of the plants. The spines were rubbed from the fruits designed for storage, the seeds removed, and the pears dried in the sun. Another cactus, also, was edible, but an informant stated that before eating its fruit one should take the red juice and paint a cross on his forehead to prevent consequent diarrhea. A third cactus (Comanche: *eka mitsa:*) was said to be obtained in Texas, but the notes do not mention whether or not it was a food plant.

The fruits of the southern hackberry (*Celtis laevigata*) were beaten, pits and all, into a pulp and mixed with fat. This mixture was rolled into balls, which were placed on the ends of sticks and roasted over a fire. The Pawnee had a similar method of preparing hackberries, but added parched corn as well as fat (7, p. 76). Hackberries were commonly eaten by Indians of the Southeast, the Plains, and the Southwest, the usual practice being to consume pit and all. In this connection it is interesting to note that in chemical analyses of hackberries prepared in the Indian manner Yanovsky *et alii* (29) found not only considerable amounts of carbohydrates and protein

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824 262 251 145 but also a high mineral content. The chief mineral constituent was calcium carbonate, which accounted for about one quarter of the dry weight of the fruits. It seems that the scanty-pulped, unpromising-appearing hackberry may have been a valuable element in the diet of the Indians.

824 262 The tuberous roots of the Indian potato or *camote de ratón* (*Hoffmanseggia Jamesii*) were eaten raw or were boiled. Roots of related species were similarly treated by the Apache and certain Pueblo Indians of the Southwest (3, p. 52; 4, p. 42).

[252] The "roots" of another plant (Comanche; *tun'ha:*) were said to be eaten fresh or after they had been peeled, dried in the sun, and pulverized. The plant, which was described as growing along with the mesquite, was not seen, but the description and the manner of use suggest that it was probably some member of the genus Cymopterus. This opinion is strengthened by the similarity of the Comanche name to the Gosiute term (*tuña*) for *Cymopterus montanus* (6, p. 96). A single species (*Cymopterus acaulis*) is listed as occurring in Oklahoma (23, p. 373).

[252] Two kinds of "wild onions" were described. A large, sweet-flavored variety (Comanche: *pakø:k*) was prepared by braiding the plants together and roasting over a fire. A smaller onion (Comanche: *t?diekø:k*), with red flowers, was considered less desirable. Wild onions were commonly eaten by various tribes of Indians, and it is not unlikely that both these plants actually belong to the genus Allium. Several species occur in Oklahoma.

Another plant (Comanche: *siko:*) was said to have leaves somewhat like those of a wild onion and to have blue flowers. The "root" (bulb?), which is eaten raw, has a sweet taste. This description strongly suggests the camass or swamp sego (*Camassia esculenta*), an important food plant of the northern Plains and the Plateau regions. The Gosiute name *pa-si-go* (6, p. 30) and the Snake name *pasego* (1, p. 9) are somewhat similar to the *siko:* of the Comanche. The Paiute name (*sego*) and the Gosiute name (*sigo*) (5, p. 498; 6, p. 30) for the Mariposa lily (*Calochortus spp.*) are even more similar to the Comanche term, but A. F. Chamberlain (5, p. 498) points out that the word *sego* in the Paiute language is a general term for bulbous roots. Calochortus, apparently, is eliminated because it does not have a blue flower and does not occur in Oklahoma (23). *Camassia esculenta* fits the description well and is available in Comanche

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County (23, p. 56); it is probably the plant to which the informant had reference. 824 262

The underground portion of a plant (Comanche: *e'kakoni*) described as "growing like a radish and having a root like a radish" was said to be peeled, and eaten raw. The "root" was further described as red and sweet-tasting. Except for the color, the plant might well be the widely used prairie turnip or *pomme blanche* (*Psoralea esculenta*) of the northern Plains. Grinnell (9, p. 178) describes, however, the Cheyenne use of a related species (*Psoralea hypogeae*) the root of which is red and which bears the same Cheyenne name as the *pomme blanche*, with a prefix meaning "red." This latter plant occurs in southwestern Oklahoma and may be the one in question.

A plant (Comanche: *totox'd*) resembling a small tomato bears a "root" (tuber?) about the size and shape of a walnut. This "root" is peeled before being eaten; the flesh is light in color. The description applies well to the wild potatoes (*Solanum Jamesii* and *Solanum Fendleri*) commonly used in the Southwest except that the plants are said to "appear in the spring and not last long." These wild potatoes are not listed in the flora of Oklahoma (23).

Several other plants which produced underground parts useful as food were mentioned by informants, and the Comanche names have been recorded. An herb (Comanche: *taḍaxko*) was collected in the spring, and the roots were cooked with fat to make a soup. A grayish vine (Comanche: *tsuns*) grows deep and produces a root which is roasted after its thin skin has been removed. (This might be some species of Smilax.) A "root" described as "like a sweet potato" (Comanche: *qɔtanarixka*) was said to grow in sandy places. This "root" is peeled and roasted. Another edible "root" which was compared to a potato has the Comanche name *sehetsitsina*. It was eaten either boiled or roasted. On the basis of its name and its use Hoebel (correspondence, April, 1939) suggests that this is the Indian potato, a plant which, he notes, "Grows in hills, flowers like Sweet William," and has "small white tubers, ripe in spring, [that are] boiled and eaten." Even with this description we are unable to suggest a specific identification. 824 262 252

A plant (Comanche: *paiyap*) was described as having a blossom like that of a sunflower, and edible "roots" prepared by roasting or boiling. This suggests the so-called Jerusalem artichoke (*Helianthus* 824 262

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824 *tuberosus*), but some other plant might fit the description equally well.
262 Hoebel (10) records three Shoshone food plants the names of which suggest a relationship to the Comanche *paiyap*. The first of these (Shoshone: *yep* or *muhaiyep*) has a single "root," grows in the hills, and is harvested in early March. The second (Shoshone: *ṭimbiyep*, that is, "rock *yep*") grows in rocky outcrops. It is of interest to note here that Chamberlain (6, p. 46) gives the Gosiute term *tiṁ-bo-ip* (rock + root + plant) for plants growing over rocks. The third has the Shoshone name *piayep*, meaning "big *yep*," which appears to be the Shoshone equivalent of the Comanche *paiyap;* it is described as having several large tubers.

824 The pod of the mesquite (*Prosopis glandulosa*) contains a con-
252 siderable amount of gummy saccharine material, of which a number
263 of analyses have been made. One of the more recent shows the beans to contain about twenty per cent sugar (28, p. 656). The Comanche
[415] crushed them in a mortar made of buffalo hide, using a pestle of mesquite wood. After the beans were crushed, the seeds were removed and the pods pounded to a fine meal, which was used alone or added to corn meal as a sweetening. A mush was prepared by
[272] mixing mesquite meal with marrow, and a drink (Comanche: *pihi-sawanap*) was made by combining mesquite meal and corn meal in water. Whether or not this drink was allowed to ferment is not mentioned in the notes. The Comanche preparation and uses of
[170] the mesquite beans are almost identical with those of the Apache and the tribes of the Gila region of Arizona (3, pp. 43–44; 4, pp. 41, 53), where the mesquite was a staple food. Among these tribes a fermented beverage was prepared from the mesquite alone or from a mixture of mesquite and corn meal.

824 In times of scarcity the acorns of the blackjack oak (*Quercus*
261 *marilandica*) were eaten. They were shelled and boiled, and might
171 be stored for future use. The Comanche, unlike many other tribes, did not grind them into meal, but ate them whole. Castetter (3, p. 47) reports that certain of the Pueblos also boiled the kernels whole. Acorns were widely used as food by various tribes, particularly in the Southwest, the Southeast, and California, and among some Indians in the latter region they were the major food staple.

The roots of several plants were eaten or chewed merely for their flavor. These seem to have been chiefly in the nature of famine foods and food supplements rather than staples. The roots of a

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thistle (*Cirsium undulatum*), the Comanche name of which was *tsɔn*, were eaten raw. This same species (listed as *Cnicus undulatus*) and others were used in much the same manner by the Gosiute (6, p. 56), who called the plants *tsin'ga* or *tsi'na*. The Snake Indians ate the roots of a thistle (listed as *Cnicus eriocephalus*, 1, p. 10), which they called *tsinah*. Hoebel (10) gives the Shoshone name of another thistle as *tsɔ'ntnɔ* and states that the root was eaten after being roasted in ashes. Its stalk, while young and tender, was eaten raw, and had the interestingly similar Shoshone name *tsɔ'ngabɔk*. A plant not collected and not seen but described as a water lily furnished edible roots, which were prepared by boiling. Two plants of the water-lily family (Nymphaeaceae) which were widely used by Indians in this manner and which would have been available to the Comanche (23, pp. 144, 145) are the American lotus (*Nelumbo lutea*) and the yellow pond lily (*Nymphaea advena*). The plant in question was probably one of these. The roots of the button snakeroot (*Liatris punctata*) were chewed, the juice being swallowed for its rich fatty taste, and those of the sweet-flavored purple prairie clover (*Petalostemum purpureum*) were likewise relished. The roots of the purple prairie clover and the white prairie clover (*Petalostemum candidum*) were similarly used by the Ponca (7, p. 94); those of another prairie clover (*Petalostemum oligophyllum*) found favor among some of the Pueblo Indians of New Mexico (3, p. 33). The inner bark of a hawthorn (*Crataegus sp.*) was said to serve as a chewing gum.

The nuts of the pecan (*Carya illinoensis*) were eaten fresh or were stored, without preparation, for winter use, as were those of the black walnut (*Juglans nigra*). Native wild pecan trees are plentiful in the rich valleys of the Comanche county and southward, and the nuts were prized by the Indians. They have been adopted as a delicacy by the white man, also, and the produce of both wild and cultivated trees is today an item of considerable economic importance.

Most Indian tribes make considerable use of plants as salads or greens and also steep the leaves in water to prepare various beverages. It is surprising that the Comanche notes do not include a single plant used for greens, and mention only two whose leaves were utilized in making drinks. The leaves of bush clover (*Lespedeza capitata*) were boiled in water to furnish a tea. The other beverage was prepared from the foliage of a plant said to grow in damp places and to have red fruits. This description strongly suggests the mem-

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824 262 272 bers of the genus Ilex, which were similarly used. The well-known "black drink" of the Southeastern Indians was prepared from *Ilex vomitoria*, *Ilex cassine*, and perhaps from other species. However, although four species of Ilex are listed for Oklahoma (23, pp. 299–300), their range is given as in the southeastern part of the state, and they perhaps do not occur near the Comanche reservation.

000 Hoebel's notes on the Shoshone (10) contain an interesting item to which we know no parallel. He records the use of a plant (Shoshone: *pɔ'ːintⁿ*) which is described as similar to the maidenhair fern (*Adiantum spp.*). The minute orange "seeds [sporangia?] in the leaves" were threshed by rubbing the leaves between the hands, and were then winnowed, ground, and boiled in water for soup.

824 278 A number of Comanche plant medicines were recorded, for a rather wide variety of ailments. Most of these medicines seem to be in the nature of practical home remedies, and few have anything of magic or of ceremony about them. Chamberlain (6, p. 46) gives the Gosiute term for medicine as *na'-tsu*. It is interesting to note that a number of the Comanche names for important medicines have this ending.

[844] The flowers of the sneezeweed (*Helenium microcephalum*) were broken up and inhaled to induce sneezing as an aid in the expulsion of afterbirth. These flowers were similarly used in clearing the nasal passages. It seems likely that the plant would be effective for such purposes, as it secretes a resin which Stemen and Meyers (23, p. 599) say is poisonous to some people; it causes a skin condition similar to that produced by poison oak (poison ivy). This resin in contact with the nasal membranes would probably induce sneezing.

[841] Two other plants were said to be employed in obstetrical cases. A tea made from the root of an unidentified plant (Comanche: *pchenatsu*) was drunk to check excessive menstrual discharge. The Arikara also use a root for this purpose, that of the mallow (*Malva coccinea*) triturated with the gum from the chokecherry and given as a drink (8, p. 74). After childbirth the Comanche woman was [844] laid on a padding of plants of silvery wormwood (*Artemisia filifolia*) over hot coals. No explanation of this procedure was obtained; the plant was widely used, however, both medicinally and ceremonially, throughout the Plains region, and smoke from it was considered effective in purification.

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Plant remedies played a part in the Comanche treatment of venereal diseases. The root of the thistle (*Cirsium undulatum*) was boiled and the liquid drunk in cases of gonorrhea. Another medicinal drink for gonorrhea was prepared by making an infusion of the stems of an unidentified plant (Comanche: *mawitsokᵛ*). Syphilitic sores were treated with the ashes of the stems of little bluestem grass (*Andropogon scoparius*).

Two plants were used by the Comanche, in much the same manner, for both toothache and sore throat. For toothache the root of the purple coneflower (*Echinacea sp.*) or the bark of the root of the prickly ash (*Zanthoxylum americanum*) was held against the tooth to relieve pain. In cases of sore throat the root of the coneflower was boiled in water and the liquid drunk, or the inner bark of the prickly ash was ground and placed in the throat. This similarity may indicate some association of tooth and throat troubles in the minds of the Comanche, but it very likely has no significance, since both plants were general cure-alls among various tribes. The Cheyenne utilized Echinacea for the same purposes, and the methods of application were only slightly different (9, p. 188). Echinacea was an important medicinal plant among the tribes of the Missouri River region, where its use for toothache was identical with that of the Comanche, but no mention is made of it as a cure for sore throat (7, p. 131).

Three plants were prescribed for the treatment of "sore eyes." The root of the Osage orange (*Maclura pomifera*) was boiled in water and the decoction used to bathe them; the stems of willow (*Salix sp.*) were burned and the eyes treated with the ashes; and the sap of the prickly poppy (*Argemone intermedia*) was administered to the eyes. It was said that in gathering this latter plant offerings in the form of beads or other objects were made to it.

A tea for "stomach trouble" was prepared from the roots of *Eriogonum longifolium*, and the leaves of mesquite (*Prosopis glandulosa*) were chewed, and the juice swallowed, to relieve acid stomach. A remedy for constipation was a drink made by boiling the stems of an unidentified plant (Comanche: *mawitsokᵛ*).

The bark of the prickly ash (*Zanthoxylum americanum*) was mixed with water and the decoction drunk as a cure for fever. Two other plants were also specified for the treatment of fever. The leaves of one of these (Comanche: *poiya*) were mixed with an herb (unknown

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824 278 757 to the informant) and boiled, the brew being used both externally and internally. The stems of a sneezeweed (*Helenium autumnale*) were soaked in water, and the body was bathed with this liquid. As a cure for colds the bark of the sumac (*Rhus trilobata*) was chewed and the juice swallowed.

A few miscellaneous remedies remain to be described.[4] The leaves of snakeweed (*Gutierrezia sarothrae*) were mixed with some other substance (unknown to the informant) as a remedy for whooping cough, and the roots of the nightshade (*Solanum sp.*) were boiled and the decoction prescribed as a general tonic, particularly in cases of tuberculosis. An infusion for reducing swellings was made from the red false mallow (*Malvastrum coccineum*) steeped in water. The tribes of the Missouri River region employed this plant in a similar manner (7, p. 103). Their practice was to chew the roots and apply [752] them to inflamed sores and wounds as a cooling and healing salve. The mucilaginous properties of the plant probably account for its use in this way. The roots of the dotted button snakeroot (*Liatris punctata*) were chewed and the juice swallowed as a cure for swollen testes. The leaves of the pecan (*Carya illinoensis*) or of the walnut (*Juglans nigra*), ground and rubbed on the affected part, were thought efficacious for ringworm.

824 411 439 The Comanche used the branches of the Osage orange (*Maclura pomifera*) in the manufacture of bows. This was the preferred wood for the making of bows throughout most of the Plains region. Since the Osage orange occurs in only a limited area, from southern Missouri to northern Texas, its wood became a valuable trade article. There are accounts telling of the great demand for it among tribes as far north as the Arikara and the Blackfoot and as far west as the Pueblos. John D. Hunter, who spent many years as a captive among the Indians of the Arkansas and Missouri country, says of the Osage orange (11, p. 173):

[825 752] [4] Two nonvegetal Comanche medicines were also collected. Although these are not pertinent to a discussion of plant uses, they may be recorded briefly. One is the nest of some nondomestic bee (Comanche: *tipinatsu*), composed of a gummy substance which gives off a pungent odor when heated. The nest was placed on the fire; its fumes, inhaled by one who was unconscious, were said to revive the person quickly. The other medicine is a white chalky mineral, apparently fossil bones (Comanche: *tsɔoβit'sitsuni*), which was obtained from deposits and used in treating sprains and fractures. The Comanche considered [776] this mineral to be the bones of Piamupits, a supernatural being.

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They manufacture it into bows, which become articles of commerce, and are sometimes exchanged for peltries, etc. I knew a Sioux to give his horse for a single one; and among the upper tribes they frequently bring three or four beaver skins each. The tree is so highly valued, that they never destroy it, except when wanted for use, or in the territories of their enemies; in the latter case, they make its destruction as particular an object, as they do that of their game.

Since the Comanche were more or less in control of at least a part of the area in which the Osage orange grew they were doubtless in a position to profit through trading it to other tribes. The Tewa tribes of the Rio Grande valley specified the Comanche particularly as a source of their Osage orange bowwood (20, p. 68).

Marcy and McClellan (15, p. 98) describe the bows of the Comanche as being made of the tough and elastic wood of the Osage orange, "strengthened and reinforced with the sinews of the deer wrapped firmly around them." This brief and incomplete description suggests the sinew-backed bow which is classified by Mason (17, p. 638) as the "seized bow" and which had sinew "wrapped about" it, but Mason seems nowhere to describe this bow in detail, has no illustrations of it, and gives no distribution of it among American Indians. The description might also apply to the sinew-lined type of sinew-backed bow except that it does not mention the lining of sinew, often inconspicuous, which was usually bound on by transverse bands of sinew. The "Shoshonean or narrow" type of sinew-lined bow (17, pp. 638, 643, and Plates 61 and 79) may be indicated. This bow had its distribution among the Shoshonean tribes of the Great Basin and among the Apache, the Navajo, and the Pueblos, but, according to Mason, did not occur east of the Rocky Mountains (17, pp. 640, 643). Wissler (25, pp. 159–160), however, examined bows in the American Museum of Natural History from various Plains tribes and noted sinew-lined ones from some of the northern Plains tribes. He considered these intrusive from the sinew-backed bow area to the immediate west, supplementary to the self bow, and of exceptional occurrence. The Comanche bows which Wissler mentioned appear to have been of the simple, unbacked type. It does not seem likely that the Comanche bows mentioned by Marcy and McClellan were such, for Mason nowhere describes or illustrates self bows bound with sinew. Whether or not the bows seen by Marcy and McClellan were sinew-backed, and, if so, whether or not they were typical Comanche bows remain open questions. There is,

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824 411 apparently, no doubt that the Comanche were in frequent contact with tribes using the sinew-lined bow, and that the tribes most closely related to the Comanche habitually used such bows.

Arrow shafts were made from straight stems of the rough-leaved dogwood (*Cornus asperifolia*). This species was also the preferred arrow material of the tribes of the Missouri River region (7, p. 108). Marcy and McClellan (15, p. 98) describe the arrows of the Comanche as being "twenty inches long, of flexible wood, with a triangular point of iron at one end, and two feathers intersecting each other at right-angles, at the opposite extremity." They do not specify the material used for arrows further than by saying that it was "flexible wood." Arrows for the *aratsi* game were made from the stems of [E24] the soapberry (*Sapindus Drummondii*). Wood for game sticks was obtained from the buttonbush (*Cephalanthus occidentalis*).

824 276 The leaves of the smooth sumac (*Rhus glabra*) were mixed with tobacco. The addition of other plant materials to tobacco was a common practice among many tribes of Indians, the leaves of smooth sumac being widely used in this way. Chamberlain (6, p. 72) notes that this species was smoked by the Gosiute, and Gilmore (7, p. 100) cites its use by the Indians of the Upper Missouri, but neither writer mentions its being mixed with tobacco. McGuire (14, p. 385) gives Marcy and McClellan (16, p. 102) as his authorities for the following: "Captain Marcy refers to the Comanche being extravagantly fond of smoking tobacco, which they call pah-mo, mixed with the leaves of sumac (*Rhus trilobata*)." West (24, p. 107) accepts this without question and repeats it. In neither the 1853 (15) nor the 1854 (16) edition of Marcy and McClellan are we able, however, to find this complete statement. The passage on Comanche smoking in these volumes (15 and 16, p. 102) is as follows: "All of them [the Comanche] are extravagantly fond of tobacco, which they use for smoking, mixed with the dried leaves of the sumac, inhaling the smoke into their lungs and giving it out through the nostrils." Evidently the Comanche term for tobacco and the name of the particular species of sumac were taken by McGuire from some other source and not from Marcy and McClellan, as is implied. It may be true that *Rhus trilobata* was smoked by the Comanche, but *Rhus glabra* was specified by our informants as the species which was smoked, and medicinal uses only were ascribed to the former. We know of only one other reference to *Rhus trilobata* as a smoking material, that by

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Grinnell (9, p. 180) for the Cheyenne, but *Rhus glabra* was commonly used by many tribes of Indians. The latter is the sumac, which Schultes (21, p. 138) mentions as used by the Kiowa.

The leaves of two plants were said to be employed as wrappings for cigarettes. One of these is the greenbrier (*Smilax bona-nox*), and the other the blackjack oak (*Quercus marilandica*). Our notes give no explicit occasions on which the leaves of the blackjack oak were made into cigarette wrappings, but this was doubtless done chiefly at peyote ceremonies based upon the religious use of the cactus. According to Schultes (21, p. 138), this use of blackjack oak leaves (given as *Quercus nigra*) in the peyote ceremony is a common practice. La Barre (12, p. 48) states that cornhusk cigarettes are standard in the Kiowa–Comanche peyote ceremony, but that the Comanche and the Shawnee sometimes employ the leaves of the blackjack oak. Opler (18, p. 28) mentions the rolling of tobacco in oak leaves (species not given) or in cornhusk in the peyote ceremony of the Carrizo and the Lipan Apache.

Mr. Carlson and the other members of the field party engaged in a Comanche peyote ceremony, but as this will be described in a later report and as a rather full account of the Kiowa–Comanche type of ceremony has recently appeared (12, pp. 43–53), we need give little attention to peyote here. Formerly the Comanche doubtless obtained their peyote (*Lophophora Williamsii*) while they were on expeditions into its native habitat in the Rio Grande region of Texas and southward, but more recently they have acquired it by trade and have even cultivated it. La Barre (12, p. 57) refers to an unpublished manuscript by Hoebel describing an early ritualistic Comanche expedition for peyote. Apparently the Comanche were also familiar with the mescal bean (*Sophora secundiflora*), which has a native range roughly similar to that of peyote. La Barre (12, pp. 105–109, 126–127) summarizes the data concerning this narcotic plant, which seems at one time to have been the center of a prepeyote narcotic cult and whose use has been retained in connection with magic and ornament, particularly in association with the peyote ceremony. Participants in the peyote ceremony witnessed by our party had red beans, which were probably mescal beans (but may have been Erythrina), on the fringes of their leggings. Skinner (22, p. 261) describes Iowa leggings, ornamented with mescal beans, which he considered might be "of the modified Kiowa–Comanche

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824 276 796 type generally affected by members of the Peyote cult among all Oklahoma tribes," and he also mentions (p. 163) obtaining a necklace of mescal beans from the Iowa, but he does not connect either of these with the peyote ceremony. Schultes (21, p. 141) states that a [789 841] Kiowa peyote leader wore mescal beans on the lower part of his leggings "as a safeguard against stepping on menstrual blood," and La Barre (12, p. 45) observed mescal beans worn on Kiowa peyote moccasins for the same purpose. La Barre (12, p. 106) indicates an [301] unpublished manuscript by Mooney as his source for the statement that the Comanche used to get mescal beans from near Fort Stanton (New Mexico), but apparently only for ornamental purposes.

783 824 Our informants stated that in ceremonies the leaves of the red cedar or juniper (*Juniperus virginiana*) were placed on the fire and the smoke inhaled for purification. Throughout the Plains the red cedar is associated with ceremonies and particularly with purification. La Barre (12, pp. 45–53) mentions several instances of the participation of a "Cedar-man" in the Kiowa–Comanche type of peyote rites. The duties of this individual seem to be to sprinkle "dried and rubbed cedar" on the fire, and at certain stages the members purify themselves in the smoke from this incense. Schultes (21, p. 139) describes the typical manner of use of the cedar incense in peyote ceremonies.

824 352 171 The Comanche brought great quantities of wormwood or "sage" (*Artemisia filifolia*) into the tipi for use as cushions. There is a strong suggestion that they did this in the ceremonial tipi especially, where "sage" (*Artemisia spp.*) was commonly employed as floor covering and cushions. La Barre (12, p. 45) mentions the spreading of sagebrush in the tipi for seats in the Kiowa–Comanche type of peyote ceremony and the resting of the "father peyote" on sprigs of sage (pp. 46–47). Opler (18, pp. 277, 279) says that the Carrizo and the Lipan Apache also strewed it on the floor and describes the placing of the "chief peyote" on it, for the peyote is considered to be friendly to no plant but this. Schultes (21, pp. 139–140) describes approximately the same uses of sage (the species *Artemisia vulgaris*) in the tipi, mentions the chewing of a few leaves of it before eating peyote, and also its place in the sweat lodge.

824 343 Two other plants used by the Comanche in the sweat lodge are the skunkbush (*Rhus trilobata*) and little bluestem grass (*Andropogon scoparius*). The bark of the former was placed in hot water and the

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fumes were inhaled. The stems of the latter were tied in bundles with which the Comanche switched themselves.

Yucca roots (*Yucca louisianensis*) were ground up for soap. Various species were used as detergents by Indians in the Plains and the Southwest particularly. The ordinary method of preparation is to strip the bark off the root and beat the root to a pulpy mass. The pulp is cut into small pieces which are dried in the sun and can then be kept until needed. When required, two or three of these pieces are soaked in water for about an hour, after which the water is agitated briskly with the hands. Suds immediately appear, forming a good lather. The Southwestern Indians prescribe yucca suds for ceremonial hair washing and also prefer them for laundering blankets and woolen garments. The roots have a high saponin content; commercial soap has been successfully manufactured from them. Another plant used in toiletry was an unidentified species (Comanche: *nemeʎisas*) of the mint family, the fragrant leaves of which were valuable for perfuming.

The leaves of croton (*Croton monanthogynus*) were said to be ground and mixed with brains of animals for use in curing hides. This and other species of croton were widely utilized medicinally, but we know of no other instance of its employment in tanning. Richardson (19, p. 67) quotes two somewhat varying discussions of Comanche tanning, but in neither of these is any plant material mentioned.

Most tribes of Indians prepared brooms by binding together the tough and moderately flexible stems of some plant, but there seems to be little or no uniformity in the plants thus used. The one specified for this purpose by the Comanche was the snakeweed (*Gutierrezia sarothrae*).

Comanche names were obtained for all the plants collected, yet the informants, although knowing the names, could give no use for a number of them. Professor Kroeber has stressed the importance of collecting and recording negative data of this sort as well as positive data, and lists of "plants not used" have appeared in papers by his students. The Comanche informants could offer no use for the following plants: cattail (*Typha latifolia*), white sage (*Artemisia ludoviciana*), false indigo (*Amorpha angustifolia*), western ragweed (*Ambrosia psilostachya*), a grass (*Elymus sp.*), and two unidentified plants bearing the Comanche names *kusiwɔna*, and *itse* or *ṭimɔyhɔ*. It may well be that some or all of these were utilized and that their functions

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824 were not known by the particular informants questioned. One man felt that the white sage had a practical value, but did not know what it might be. Some of these plants have been recorded as used by tribes more or less in contact with the Comanche and may have been employed in a similar manner by the Comanche. The informant who pointed out the western ragweed (*Ambrosia psilostachya*) gave its name as *woanatsu*, but knew of no use for it. The ending *natsu* [757] indicates a medicinal plant, and it is interesting to note that this plant was prescribed by the Cheyenne in the treatment of colds, cramps in bowels, and bloody stools (9, p. 188), and that it was also valued by the Gosiute in the treatment of sore eyes (6, p. 49), but has a quite different name, without the *natsu* ending, in Gosiute.

221 166 824 The Comanche were formerly a very nomadic people, particularly after their acquisition of the horse. Marcy and McClellan (15, pp. 94–95) describe them as following the buffalo from place to place and also tell of their horse- and cattle-stealing expeditions, which covered over a thousand miles and even took them into the northern provinces of Mexico, consuming two years or more at a time. Richardson (19) tells something of the migrations, movements, expeditions, and contacts of the Comanche. They appear to have been in at least occasional touch with Apache and Pueblo Indians of the Southwest and with Plains and Plateau tribes as far north as what is now the Canadian border. It seems reasonable that they should have been an important agency in the diffusion of plants and of knowledge of plant uses as well as of other culture traits. They controlled practically all the limited area in which the valuable *bois d'arc* or bowwood grew and from which it was traded to the Siouan, the Caddoan, and other tribes to the north, and to the Pueblos to the west. They doubtless also were instrumental in spreading the narcotic cults based on the peyote and mescal beans. La Barre (12, p. 43) considers the Kiowa and the Comanche to be the center of diffusion of peyote in the Plains. Both peyote and mescal beans were native to the southwestern region of Texas and in Mexico, but were diffused almost throughout the Plains and as far northeastward as the Great Lakes. Certainly the many similar plant uses of the Comanche and of other tribes of the Plains, the Plateau, and the Southwest indicate either Comanche contact with these various peoples or a very active dissemination of such traits throughout these areas.

192 *mix* + -?]; namocono?i? *tweezers* [na- + mo·cO *whiskers* + no?I *pluck* + -?]; *namocowïcke? *razor* (*whisker cutter*); namuvIsicïma? *handkerchief* (*wipe, rub something off one's nose*); nana?atahpunaha? *taffeta, changeable cloth* (*change in different ways*); narïmu?irïvo·pI *newspaper* (*tells a story paper*); *nani?o·ki? *court* [na- + ni?o·kI *call people together* + -?]; nano·? *harness*, old people's word (*its load*); *nayohkahnI *brothel* [na- + yo·kO *copulate* + kahnI *house*]; *nayokOwa?ihpï? *prostitute* (*woman who copulates*); nï·pïcapI *operation* (*cut one open*); nï·pohpi? *skipping-rope* (*make one's self jump*); nï·hïca?wï? *fan* [nï· + hïhca?wI *cool a person* + -?]; nïmivó·?e·tI *camera* (*customarily draws people*); nïmimáka?e·tI *waitress, waiter* (*customarily gives people food*); nïminó?e·tI *bus* (*customarily carries people*); nïmiwïcIke?e·tI *barber* (*customarily cuts people*); *nïnakarïkï? *medal, badge* [nïnapI *chest* + ka·rI *sit* + -kï benefactive + -? nominalizer]; nïnaci?nika? *pin, brooch* (*push a pointed object onto the chest*); nïnïyI?wi? *alligator* [nï-, reduplicated (?) + yI?wi (swallow) + -?]; no?anohkopI *pie* (*pregnant bread*, baked); no?sina?camokwe? *Concord grapes* (*embryo grapes*); nohihtaivo·? *circus, carnival, fair* (*play White man*); nohihknI *theater* (*play house*); nohkopI *bread, biscuits* (*baked*); nukIsari·? *greyhound* (*run off dog*); nunurawï? *movies* [nunurawïpI *stampeded, ran off*, as buffalo herd].

*wanaramU *thread, cord* (*cloth sinew*); wanarasé·yu? *clown* (*cloth puffed out at the foot* re pantaloons); *wanako?ce? *soap* (*cloth washer*); *wanacahkïna? *needle* (*cloth sewer*); *wanaciya·? *flag, banner* (*cloth held up by a pointed instrument*); *wananapI *stockings* (*cloth shoes*); wanso·nA *cotton* [wanapI *cloth* + so·nA *pad*]; wansonamuvIcapI *open cotton boll* (*cotton opened with the mouth*) [so-called because of belief that whatever is inside breaks the boll open with its beak as does a hatching bird]; wïhavi·tI *parade* (*stretch along*, as line, etc.); *wo?arïhkapI *rice* (*worm food*) [It was said that rice looks just like worms. It was thrown away when first received as rations];

[824] [262] [P. 226-8]

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115 They teach us the men. We all sitting around there. When she tell us how
159 Jesus was born, we just laugh and act silly and our matron would say, "Don't
177 laugh." Then we ask her, "Did you see the baby?" You know, things like that
797 . . . the older girls and us ask her questions like that. We just laugh about it.
872 All the time we thought it was silly for them not to go and see the baby when
[212] it was born. Yeah, we learn how to write and learn how to spell, and arithmetic and whatever they learn us. We caught onto it. Then the government wrote a letter to our superintendent and said to send a bunch of them to Haskell in Kansas. And they sent a bunch of them over there and they went to school up there for about three years and they come back and they were grown and they all got married, but I didn't go. My mother wouldn't sign the papers and my dad wouldn't let me go. "No, we don't want her to go up there. She might run off or she'll freeze to death or somebody might kill her on the road." So a bunch of us girls, we didn't go. And a bunch of them went. My brothers went. They were younger than I and they went. And my mother said, "No, she's not going, but you boys could go. Boys are tougher than the girls." That what she told my brothers and so they went. I didn't care nothing about it either way.

During the summer vacations she would return to her home, which at that time was situated along Chandler Creek in Comanche County, Oklahoma.

I never did go places because we didn't have no places to go in them days . . . no cars or nothing. When we come out of school we just stay home all summer.
115 Help my father with the work and everything he's got. He had lots of crops. My
159 brothers cultivate that corn. I have to ride the horse for them and keep it on
241 the row because the corn was so high that the horse would keep eating back and forth and my father would make me ride that horse to keep him on that line so he won't be eating the tops of the corn. They take turns, three of my brothers, while I be riding that horse all day, all day. In the morning we go plow till noon and then we go to dinner and then we go back and plow again till we get through with it. My father used to teach us to work, you know.

115 It was during summer vacation prior to her last year at school that Sanapia's
159 mother offered to train her to become a doctor. Sanapia was reticent at first, but
593 combined pressure from her mother and maternal grandmother persuaded her to
756 at least consent to the first phases of this training program, that of learning to
868 identify in their natural habitat the various floral medicines which her mother
●824 used in doctoring.

The Middle Years

115 Sanapia left school when she was fourteen years old, and her activities
159 for the next three years were in the main involved with the training program her
756 mother and uncle had established to teach Sanapia all she would need to know to
868 become an eagle doctor. By her seventeenth year Sanapia had successfully com-
[871] pleted her training and possessed all the skills, knowledge, and supernatural powers
[582] which she would employ in doctoring after she passed menopause. During the period of training her mother had dissuaded her from marriage so that she would

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115 year of school. This first phase consisted of lessons in identifying certain medicine
159 plants in the field and in the avenues of acquisition of medicines which were not
756 native to southern Oklahoma. Sanapia was also taught the rituals involved in the
[824] collection of certain plants and the various manners of rendering raw plant parts into
[278] manipulatable medicine. Concomitantly, she was instructed in the skills of administering medicines.

The first phase initiated Sanapia's training period and continued throughout the next three years. Sanapia was next instructed in the diagnosing of all manner of human afflictions and their proper treatment. During this time she served as an aid to her mother and maternal uncle in their doctoring activities and thus was able to observe the actual treatment of patients as well as the required deportment of a doctor and his patient. However, knowledge of ethics and required role behavior of a doctor was not left to Sanapia's youthful observations alone. She remembers "long, long talks" when her mother and uncle would impress on her the proper behavior of a doctor.

115 These rules of conduct, in the way in which they deemphasize the signifi-
159 cance of the individual and emphasize the supernatural powers operating through
756 him, seem to have a distinctly Judao-Christian cast to them and appear to be some-
177 what counter to the more individual-oriented supernaturalistic notions recorded for the Comanches of an earlier time. Perhaps Sanapia, in her attempt to construct a unified religious structure from the three disparate supernaturalistic systems into which she was born, has slightly modified the tenor of the eagle doctor ethics and their premises, as taught by her mother and maternal uncle, to make them more compatible with other elements in her own personal syncretic supernaturalistic complex. It is highly doubtful that her mother, with her aversion to Christianity, would have so sensitively and systematically performed this feat.

Deportment of a Doctor

115 Most importantly, the doctor must lead a good and honorable life. The
159 Medicine demands this, and it would do harm to the individual possessing
756 it if he acted in a manner unbecoming a *puhakut*. Sanapia suggests that a *puhakut*
[761] and his Medicine are one. If a possessor of power, through his untoward behavior, brings disgrace on himself, he also brings disgrace on his Medicine, and as punishment his power could cause his death.

The doctor must also be always accessible. He cannot refuse anyone his services. Sanapia conceptualizes herself, in the role of eagle doctor, as the medium through which the Medicine operates. She "possesses" Medicine only in this sense, and, once she has committed herself to the life of a *puhakut*, it is no longer her decision as to who may or may not benefit from a supernatural power acting through her which can alleviate human suffering.

An eagle doctor must never extol his own abilities and should also dissuade others from doing so. Once again, Sanapia interprets this as a further means by which the doctor recognizes that it is not the doctor but the Medicine with which he has been gifted, which is responsible for the good works which are accomplished by him.

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Botanical Medicines: Collection, Preparation, and Dosage

Sanapia collects her botanical medicines from their natural habitat in the late fall and early winter. She feels that by this late date the rattlesnakes, of which she has a morbid fear, will be less numerous. More importantly, she feels that plants are not completely matured until immediately before their death at the first frost of fall.

> I don't know how you could get any medicines in the spring. Just full grown is when they any good. That's when I get it. Rattlesnakes be gone too. In the fall they be already to get. Go get them when its cool, now its no good because it's summer. Too hot and too many snakes around. Plants aren't good now anyway for medicine.

The root is the most important source of medicine on any plant, according to Sanapia. She seldom utilizes other parts of a plant, but it is noteworthy that when she does, the part she uses is in almost every instance the top of the plant.

[778] Sanapia feels that the two most important sources of power for a medicine plant are the earth and the sun. She uses this rationale to explain her use of only the extreme top of plants, the part nearest the sun, and the extremity most surrounded by earth, the root. Peyote and cedar are notable exceptions to this scheme.

[778]

[755]
[757]

Bottom, left to right: medicine cedar, sucking horn, bakumak. *Top, left to right: peyote, glass slivers,* bekwinatsu.

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However, these plants are believed to possess a high degree of power by their nature and are therefore not so dependent on the earth and the sun for power.

In the fall when Sanapia judges that the sun is growing weaker and is less able to give power to the medicine plants, she begins her medicine plant collection. She feels she is then obtaining the medicines at their peak of maturity. In the case of my investigation of Sanapia, her collecting time fell in late October and early November. The later the summer and fall, the more efficacious the medicine plants will be since they have been exposed to the sun for an added amount of time.

For the most part the plants which Sanapia uses grow in sandy soil. She denies that medicine plants can be obtained from any other type of soil. *Basiwa:pi* is the word which Sanapia applies to this type of soil, and she translates the word as "sandy;" "sandy ground;" or "best ground."

Sanapia follows a fairly rigid field preparation of the medicine plants she collects. As soon as possible after extracting them from the earth, they are taken to the nearest body of flowing water, where they are cut into manipulatable sizes and washed. Upon returning to her house, she once again washes the medicines and then stores them in the storm cellar, suspending some from lines which traverse the cellar and placing the remainder in jars. The immersion in flowing water applies to roots or plant parts other than leaves or flowering bodies;

Bottom: sweet sage. Left to right: mescal beans, chow feather amulet, charcoal from peyote drum, gray sage.

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Sanapia preparing medicine.

but since Sanapia almost exclusively uses only the root of the plant for medicine, this concern with flowing water seems ubiquitous on medicine-plant-collecting trips.

278 801 171 Her dosages of the various botanical medicines follow the mystical number four found in the southern Plains area. The medicinal decoctions and infusions which she prepares are always given in units of four—four cupsful, four spoonsful, and so forth. Her externally applied medicines, such as salves and liniments, are administered with four movements of the hand; and when dried cedar leaves are employed to produce medicine smoke, they are deposited on the live coals in the course of four consecutive abbreviated motions of the hand.

128 In the following discussions, a standardized introductory line will be used for each plant when possible. The Comanche term for the plant will be presented first, followed by Sanapia's translation of the Comanche term. The English translation of the Comanche term will be followed by the binomial classification of the plant, which in turn will be followed by the English common name.

278
824
137 "red berry cedar" *okapokowa:pi*
Juniperus pinchotii (red cedar; juniper)

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Sanapia refers to all other varieties of *Juniperus* as *taiβowa:pi* or "white man cedar." She uses the dried and pulverized root to make a decoction which is internally administered to treat menstrual complaints. However, to Sanapia, the dried and rubbed leaves of the cedar are the most important parts of the plant. She sprinkles them on live coals, which are always formed from pecan twigs, to produce a thick aromatic smoke which is inhaled by patients suffering from ghost sickness, vertigo, or severe headache. The cedar smoke is also fanned over an individual by Sanapia in her blessing ceremony, a prominent aspect of all her doctoring activities. She uses the cedar medicine smoke in any instance when she is called upon to dispel the influences of the ghosts. When she is commissioned to ritually cleanse a house in which a death has recently occurred, she employs cedar smoke as a central core in this activity. When an individual is plagued by thoughts of a deceased relative, Sanapia prescribes a fumigation of the home with cedar smoke. She also strongly urges "cedaring" of the sleeping area before retiring at night.

> Only use that red berry kind . . . get it on those slick hills west of here. They say when you use that cedar and they smell it, it blows all that bad stuff and pain away from you with that smoke. It keeps you well, and you won't ever be scared or nothing. Lot of different ways it help you like that. It's green, and its living all the time. In winter, summer, anytime. I don't care when. It's got Medicine for that. That's why I use it.

natsa"ksi

"sneezing medicine" *Helinium microcephalum* (sneezeweed)

This plant is collected in the early fall. The flowers are detached and allowed to dry. When dried, the flowers are crushed and inhaled through the nose to produce the desired violent sneezing.

Sneezing medicine is administered to patients suffering from heart "flutter," low blood pressure, and head and nasal congestion. In Sanapia's opinion, the sneezing stimulated by this medicine keeps the heart beating steadily and strongly, thus maintaining the proper blood pressure. Also, she has the notion that in old age the heart becomes loosened from the cavity in which it is supposed to be housed. The violent sneezing caused by this medicine is capable of shocking the heart back into its proper position.

For those suffering from sinus congestion or head colds, Sanapia makes a very effective "inhaler" out of a small bottle or can. The container is half filled with the sneezing medicine. The patient is directed to shake the container, remove the lid, and inhale the dust when he is suffering from head congestion. Sanapia got the idea for her inhaler from commercials for cold remedies which she has seen on television. Many of her ideas concerning the nature of head and chest congestion and especially colds stem from notions absorbed from viewing television commercials. She uses terms like "bronmicha" for "bronchial" and "simus" for "sinus." The bronmicha is everything in the chest cavity except the lungs and

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heart. Her idea of the location of the sinus cavities is essentially correct, though she does not understand their function.

ekəpa

"red bean" *Sophora secundiflora* (mescal bean)

Sanapia grinds the mescal bean to the consistency of granulated sugar and then boils this coarse powder, which she first wraps in a makeshift cloth bag. When the decoction has reached the desired brownish coloration, it is strained through another piece of cloth, and the liquid is used as eardrops in the doctoring of earaches and sores deep in the ear. Sanapia reports that her maternal uncle, a *puhakut*, would sew mescal beans into the cuffs of his trousers as protection against possible contamination from menstrual blood.

puitsasəne

"eye scraper" *Elymus sp.* (rye grass)

Sanapia uses a single looped blade of this grass as a filelike tool in the removing of "cataracts" (trichoma). She describes this treatment as follows:

> You take that and double it up and turn the eye lid over and scrape it just as easy as you can. Then you just scrape it and scrape it until it bleeds . . . that thing on there bleeds. Well, you just keep on scraping until it finally comes off. Its the eye lid that causes cataracts because those things rub on the eye and make them sores. You got to scrape the eye. Put sugar water on it after you scrap it. It makes it feel better. Put sugar on after that thing stops bleeding.

kunənatsu

"fire medicine" *Zanthoxylum americanum* (prickly ash)

An infusion is made from the root of this plant and used for the treatment of fever. The powdered root is also used in the treatment of toothache and burns. For toothaches, the powder is wrapped in a piece of cloth and this tiny bundle of medicine is placed next to the afflicted tooth. The medicine promotes a numbing in the mouth. In the treatment of burns, the powder is sprinkled dry on the burn. The term "fire medicine" stems from the burning sensation which this medicine causes when it contacts an open wound.

bakuma[k]

"in the water" *Iris sp.* (iris)

This plant is an unidentified variety of *Iris* which is not native to Sanapia's home area of Comanche County, Oklahoma. Sanapia utilizes a decoction of the root in the treatment of colds, upset stomache, and sore throat.

bakuma[k] is the only medicine plant whose locale of growth is to some extent controlled by Sanapia. Her mother transplanted a number of these plants

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to a spring near Sanapia's home, and Sanapia makes an effort in her collection of this plant to never totally deplete the planting made by her mother.

This *Iris* is very similar to a variety which is found in eastern Oklahoma, significantly in an area of high Creek Indian population density. The Comanches and the Creeks have had close ties since the late nineteenth century (Wallace and Hoebel 1952:304), and Sanapia remembers traveling with her mother to eastern Oklahoma to visit Creek acquaintances. It is possible that Sanapia's mother could have learned of the medicinal qualities of this plant from the Creeks and brought back a collection to her home in Comanche County. The peculiar characteristics of the variety of *Iris* which Sanapia uses as medicine could have resulted from natural modifications stimulated through time by this change in environment.

pɔhɔβi

"white sage" *Artemisia ludovicians* (lobed cudweed; gray sage)

Sanapia employs the leaves of the gray sage in treatment of insect and spider bites. She chews the leaves and rubs the resulting moist pulp over the area of bites to relieve itching and swelling.

ɛsipɔhɔβi

"sweet smelling sage" *Poliomentha incana* (sweet sage)

This medicine plant comes from the area of the Mescalero Apache reservation in southeastern New Mexico. It is obtained for Sanapia by Fort Sill Apaches who have ties with the Mescalero.

In a doctoring situation when Sanapia must apply her mouth to the afflicted area of the patient's body in an attempt to suck the sickness from the patient, she chews a small piece of sweet sage and retains it in her mouth with the masticated medicine which is being specifically employed at the time. She states that the sweet sage acts to sweeten the usually bitter taste which results from this type of procedure. Sweet sage, in certain circumstances, is also added to ***bɔkwinatsu*** (to be discussed) to increase its potency. It is also added to various medicinal "teas" to make them more palatable to the patients.

During Comanche peyote meetings held on Sanapia's property, it was pointed out that the leafy cushion upon which the Chief Peyote rested was made of sweet sage. The sweet sage used in the peyote meeting is particularly valued by Sanapia as a medicine since it gains an added potency through its contact with the Chief Peyote.

bɔkwinatsu

"swelling medicine" *Matelea biflora* or *cynanchoides* (recumbent milkweed)

This is one of Sanapia's major medicines and one of the three plants which she attributes with some degree of intrinsic supernatural potential. The other two medicines so considered are peyote and cedar.

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278 824 755 757 A decoction of the thick white root is externally administered in the treatment of ghost sickness, bruises, bone breaks, and menstrual cramps. A paste made from the root is used to coat the finger during the treatment of "poking the throat." This procedure is usually initiated in the case of children with diphtheria or other conditions which are acting to close the throat passage. Sanapia applies the paste to her index finger and lightly probes the child's throat to the extent of her finger's reach. This same paste is used as a liniment in all cases of severe stomach pains. In addition, Sanapia spews from her mouth a very dilute decoction of this medicine on patients suffering from ghost sickness.

There is more ritual activity involved with the collection of *bekwinatsu* [782] than with any other plant medicine which Sanapia utilizes. Upon approaching the area in which the plant will be collected, Sanapia recites a short prayer.

> Well, I tell it that I'm coming to take it way with me. I say that I need you help peoples that got twisted face . . . what them ghosts do to peoples, you know. Then I tell it that I'm going to give it something in return. I supposed to put a piece of green goods over its branche before I dig it out. Sometimes I do and sometimes I don't. Sometimes I'm in a hurry so I don't do that, but that's what I'm supposed to do, that's what my uncle told me to do.

When she approaches the plant, she situates herself to the west of the plant and drapes a small strip of dark green cloth over the spindly branches. She then digs the plant from the ground, detaches the long root, and deposits the remainder of the plant over the hole from which it was extracted with the strip of green cloth attached to one of the branches.

sanawiba

[137] "yellow flowers"; "makes knife sticky" (broomweed) *Guitierrezia dracunculoides*

Sanapia uses this plant medicine for the treatment of exzema and rashes when prepared as she describes.

> Get the tops . . . the flowers . . . and boil them into a jelly. Now, when anybody got excema, you just wrap it on . . . put it on a rag and wrap it on there. Use the tops . . . just tops. Boil them good and when they cool down, they get just like jelly. That jelly is what you use for medicine.

kutiwana

"it's gray" [No specimen]

This is one of Sanapia's major medicines. It is used as an addition to many medicinal preparations to increase their potency. An infusion made from the root is also used as a sedative in the absence of peyote or concomitantly with peyote. It is specifically used, however, in the treatment of "fits" (epilepsy?) and as the main medicine employed in the treatment of witch victims.

When used to treat fits, the splintered root is boiled to a tea, and the

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patient is liberally dosed with this decoction until the symptoms subside. According to Sanapia, this root is unusually hard and therefore difficult to prepare for use as a medicine. However, she considers its extreme hardness as a positive quality since she associates hardness with compactness; therefore, she feels there is more medicine to a piece of *kusiwɔna* than there would be to practically any other medicine of equal size. 278 824 755 757

In the treatment of victims of witchcraft, a decoction of this root is utilized in several different ways. It can be made into a thick paste which is applied to an area of minute incisions which are made by Sanapia with slivers of glass before she begins to suck from the victim the magically toxic feather which has been introduced into the victim's body by the witch. The decoction can also be drunk by the patient, or it can be spewed on him by Sanapia in the course of treatment. [754]

do:ltsa

[No translation] [No specimen]

Sanapia obtains this medicine from Shoshone friends who live on the Fort Washakie reservation in central Wyoming. She utilizes the thick root of this plant, without modification, as a medicine to induce appetite and stimulate weight gain. A decoction made from this root is also used in the treatment of tuberculosis.

From Sanapia's description of *do:ltsa* and its properties, it could be suggested that this plant is *Perideridia gairdneri*, a wild caraway, called *yap* by the Comanches (Kearney 1951:615). Since Sanapia first acquired this medicine from an Arapaho uncle, who in turn suggested to her certain Shoshone as further sources for it, the name which she uses may well be Arapaho, Shoshone, or Sanapia's Comanche-ized corruption of an Arapaho or Shoshone word which is applied to this plant. [177]

bɔ:tasas

"looks like feathers" [No specimen]

This medicine, like sweet sage, is obtained for Sanapia by Fort Sill Apaches from the Mescalero country. The fruiting body is made into an infusion which is internally administered in the treatment of tuberculosis, various stomach complaints, and postnatal hemorrhaging. A thick paste is prepared from these fruiting bodies and applied as a liniment to the chest and throat of those suffering from pneumonia. No specimen would be obtained. However, from Sanapia's description, *Agoseris* might be suggested as a highly probably genus affiliation. [844]

oinatsu

"vomit medicine" . [No specimen]

Sanapia reports but one use for this medicine plant. A decoction of the root is taken internally by patients afflicted with asthma or chest congestion. The described results are quite spectacular.

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278 824 755 757 You just give them a cup full of this, and another cup, and another, and another . . . they just be filled up with that medicine. Sit around for ten or fifteen minutes and that medicine just goes in their stomach and stirs up all that fluid, whatever it is. When you got asthma, you got all those bronmicha [sic] tubes filled with slobber. That medicine takes it out. It comes out by itself, you don't have to vomit or nothing . . . through the mouth . . . comes right out. Some of it comes through the nose too. It runs out fast and they get well. You don't have to treat them another day longer.

itse

[No translation] [No specimen]

This medicine comes from the Mescalero Apache region and is obtained from the same sources which supply Sanapia with *ba:tasas* and *ɛsipɔhɔβi*. Dr. Harry W. Basehart of the University of New Mexico, who has done field research among the Mescalero, states the word *itse* is very similar to a Mescalero word which means "mystical influence." Mrs. Julia A. Jordon made a similar suggestion based [177] on her experience with the Kiowa-Apache of Oklahoma. There is a strong possibility, then, that this word has been borrowed from Apache into Comanche.

The part of the plant which is utilized as medicine seems to be from [752] Sanapia's description, a fruiting body. The plant is chiefly used as a remedy for [825] the bites of rattlesnakes and as a rattlesnake repellent. Sanapia describes how she uses it as a snake repellent for her son:

> When he goes to the field, like now, I have it boiled and I just rub it on his leg like that and then a cloth and pour it on and tie it around his boots . . . pour it all on there. Now if there's a rattlesnake running right there, he right up on him, but he won't jump him. He smells that and he just lay low. It'll kill that snake right now. I don't know how it does it. That medicine is really strong. A rattlesnake ain't going to smell it. They going to die if they smell it.

Sanapia recalls that she saw old people among the Comanche carry it in small cloth sacks tied to their belts or around their ankles in order to repel snakes. [752] In the case of snake bite, the *itse* is chewed to a pulpy consistency and spread over the fang punctures, or it is retained in the mouth of the one who attempts to suck the poison from the wound. It is also used in this manner for the bites of poisonous spiders and scorpions.

In addition, Sanapia boils it into a thick broth for patients suffering from pneumonia. She notes that one of *itse*'s interesting characteristics is that it causes excessive salivation, and she therefore employs it when she must induce salivation in a patient.

osidobeda

[137] "peyote" *Lophophora williamsii* (peyote)

Peyote is Sanapia's most utilized general medicine, and in her opinion its curative properties can aid in healing any type of human physical affliction. She grinds and pounds the dried buttons to a powder which is then boiled or

31: Jones E-5 (1967-1970) 1972 NO6 Comanche NO6
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steeped to produce a decoction or infusion of the desired consistency and coloration, or she employs the powdered peyote buttons alone. She also makes a medicinal relish from the green peyote buttons. In many cases the peyote is left unaltered and used in its dried or green state.

As mentioned, Sanapia can involve peyote in the treatment of any type of illness. Peyote is used mainly by Sanapia as a painkiller and sedative. It can be prepared in numerous ways. To quiet pain, Sanapia gives the patient four peyote buttons to eat, in most cases by chewing them first. For colds, pneumonia, and internal disorders, a decoction or infusion of peyote, commonly called "peyote tea," is administered.

When treating ghost sickness, Sanapia manipulates peyote in several ways. The patient is given four buttons to act as a sedative. During treatment Sanapia puts some dilute peyote tea in her mouth, releases a portion of it into her hands, and applies this to the affected portions of the patient's face. While retaining some of the solution in her mouth, she applies her mouth to the patient's face. She may also spew this thin decoction over the patient if she believes this type of procedure would be efficacious.

She applies thin, latitudinal, coinlike slices of the peyote button in the treatment of arthritis, severe headaches, heart pains, and in any relatively localized area of pain. Of course, a liquid preparation of peyote can also be administered in these conditions. The exact manner of administration and preparation of all medicines is determined by Sanapia through experience and inspiration.

Sanapia carries several peyote buttons with her at all times. She considers this her minimal doctoring kit. Peyote is extremely important to Sanapia as a medicine. However, she feels that her powers make her superior to the peyote. She states that peyote is the most powerful of all plant medicines. It is also one of the few medicines which Sanapia talks to and the only one which she threatens.

təpinatsu

"rock medicine"

This medicine is not a botanical item. I include it under the section on botanical medicines for several reasons. Sanapia feels that rock medicine is totally composed of plant parts. Also, at times she speaks of it "growing on rocks."

Təpinatsu is the word which Sanapia applies to the gummy, amber-colored matrix produced by a variety of mason bee as the basic material for its egg depositories. This solitary bee affixes these irregularly shaped cases, which are usually between ½ and 1 inch in diameter and approximately one-fourth of an inch thick, to rocks and then proceeds to camouflage the case by inserting local grains of sand and pieces of gravel into the sticky matrix of the case. It is from the resulting rocklike appearance that the medicine gains its Comanche name. Sanapia describes its composition:

> Some little bitty bugs get gum from the cedars on them slick hills. Then they take bites from the yellow flowers on them broomweeds, and some sage

31: Jones E-5 (1967-1970) 1972 NO6 Comanche NO6
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278 824 237 755 757 [754] too. Put it in their bodies and mix it up so they can stick it on these rocks like you can see. That's why this medicine works best with cedar.

Rock medicine is only used in conjunction with cedar: Both are deposited on live coals to produce medicine smoke. The *təpinatsu* sputters when placed on the coals and produces a thick white smoke which is not unlike cedar smoke in odor, though more pungent. This medicine's major use is in the treatment of ghost sickness and the results of witchcraft.

Sanapia picks the tiny pebbles and grains of sand from the *təpinatsu* and forms the then-translucent amber-colored gum into a ball about an inch in diameter. She rolls the ball between her palms and the heat and friction polish it to a glassy brown-gold color. It is in this form that it is utilized as medicine.

There is a medicine similar in kind to *təpinatsu* which Sanapia reports is found in the vicinity of Wichita Falls, Texas. The Comanche word for it, according to Sanapia, means "rats make it." It is described as being of the same composition as *təpinatsu*; however, instead of being produced by "little bugs," it is believed to be produced by pack rats. The gummy substance is melted in hot water, and persons suffering from paralysis, other than the kind caused by ghosts, are bathed in this concoction. This medicine, unmelted, is also applied directly to the area of paralysis. Sanapia remembers that her mother used this medicine; however, it was not transferred to Sanapia when she became a doctor.

278 824 755 757 [844] [303] Another medicine plant of which Sanapia has knowledge, but which was not transmitted by her mother to her, is one which, when mixed *bekwinatsu*, was administered as a sedative to women in protracted labor. The seeds of this plant were utilized as medicine when boiled into a medicinal decoction. Sanapia also states that the seeds of this plant augment the attractive aroma of Indian perfume (*Monarda fistulosa*) when the two are mixed and moistened.

I can just sit here and look at them bald prairies and see four kinds of medicines growing. I bet you can't even see them? Not many . . . even of my people, up to today, can even see them growing early in the spring. I can because I've learned that way. There's lots of plants that can get you well, but they ain't many people who even know that anymore.

31: Jones E-5 (1967-1970) 1972 N06 Comanche N06
Oklahoma

775 755 756 782 [276] then unwraps her medicines and exposes them on the cloth in which they were wrapped.

Both Sanapia and her patient smoke Bull Durham tobacco wrapped in corn shucks as they wait for the sun to rise. Sanapia prays to the earth immediately before sunrise, and when the sun appears, she directs her prayers to it.

> In the morning, before the sun come up, you go out away from the house, where nobody can hear you and you pray. You touch the ground with your hands, four times, and say . . . I don't know where it came from, but you say, "Mother earth, I want you to take my words. I want you to do what I want. I'm walking over you. I live on you, and I love you because you're my land." Say things like that to it. That sun not up yet. But it's the big eagle . . . talk to it like it's eagle . . . think of it like that, you know. It's going to fly up pretty soon when the sun comes up, and that's the eagle going to do everything I want.

776 821 823 The sun and the earth were the two greatest sources of power in the nomadic Comanche culture. Wallace and Hoebel (1952:190) write that ". . . only the sun, moon, and earth were looked upon as semi-dieties." They were also personified and addressed in prayer. The earth was considered second only to the sun in supernatural importance by the Comanches; however, though they were active in the affairs of men, neither the sun nor the earth gave personal power (Wallace and Hoebel 1952:195–197). Also in the content of the pages just cited are numerous mentions of the earth being addressed as "mother" by the Comanches. Kardiner (1945:63), when discussing Comanche beliefs associated with magic and power, writes: "The greatest powers were the earth, and the sun, with which the eagle was felt to be associated."

775 755 756 782 When the sun appears over the horizon, Sanapia begins her prayers in which she will ask "the eagle" to aid her in healing her patient. The patient, seated beside her, is instructed to pray for his recovery and to put his faith and trust in the powers of the earth and sun. She also indicates her medicines, exposed to the sun, and asks that it will fill them with power.

[372] This period of prayer, first to the earth and then to the rising sun, lasts about half an hour, or until the sun has completely cleared the horizon. Sanapia then takes her patient back to her house, where her hubsnd or son have already prepared the pecan wood coals which Sanapia will need when she begins to doctor.

[824] [237] [778] Pecan coals are desired because they form long-burning, even coals. At this time she will attach her crow feather amulet to a beam on her front porch. She sometimes affixes several crow feathers to her patient's wrist.

As mentioned previously, in doctoring, Sanapia is alone with her patient.

775 755 756 [823] If she is in a tent or tepee, she sits on the south side of the tent, which is customarily facing east, and positions her patient directly in front of her. He lies on his back with his head toward the west. The medicines she will use are placed to her right, and the pecan coals are placed in an iron kettle or shovel so their position can be changed as Sanapia doctors. When she is in a house, she attempts to duplicate these conditions as closely as possible.

After her patient is situated, Sanapia begins her attempt to mobilize her

32: Gilles O,X-3 (1902-c.1910) 1974
NO6 Comanche NO6
Oklahoma

000 As soon as he was paid off, he sacked his saddle and made his way home by way of Kansas City. Part of the journey was made by stagecoach, part by passenger train, and part by mail hacks. He was home sooner than anyone else, including the boss, who was carrying the cattle owners' money. But the cowboy could tell them about what the different kinds of cattle brought.

He started right in securing commitments for a herd of stock cattle to start up the trail the next spring, as soon as graze was sufficient. With his father's backing, he had no trouble securing the 643 required number. When he got his herd across the Red River the next 609 spring, he too started for the Comanche chief's camp, and arranged a meeting at the same spot as before.

He said that when Quanah walked into their camp the morning of the rendezvous, he stopped where the rope corral for the horses had been the year before. The old cowman said it was the most luscious weed patch he had ever seen. He was sure every weed known to the Middle West was represented.

643 Silently, Quanah looked at the weeds for some time, then shook 609 his head, saying, "White man he come. Stranger [weeds] he come. 824 Indian he go."

Of course, the Chief was under the impression that the white man had brought the weeds to Comanche land; but actually the weeds were there all the time—scattered and stunted, choked back by the grasses, under normal conditions. But the horses, in and out of the corral during three days of rain, had completely destroyed the grama and mesquite sod, tramping it into the ground.

000 Weed seeds lying in the matted grasses now were in touch with the rich soil, and they grew and produced a sufficient seed crop to seed the coral ground completely this second year. Of course nothing ate the weeds, as there was an abundance of grass on every side.

Years later, in my time, this land was bought from the Indians and opened for homesteading by lottery. Weeds were not apparent, and many farmers looked forward to farming weed-free soil. But the farmer discovered the weeds were there; once the heavy sod was destroyed, they came on with a rush.

Somehow the weeds had managed a seed crop each year. Each year enough seed escaped the sharp eyes of the birds and seed-eating rodents to settle deep in the mesquite grass mat, preserve their species, and complete the cycle.

167: Peters T-5 (1843) 1877 NT13 Navaho NT13
Comanche NO6 ●

I derived, and minutes made at the time, will now only enable me to give you the modus operandi of extracting their dyes, without being able to give you the names of the ingredients. The specimens I had been enabled to collect have become dried up, and many have been lost by crumbling, and I was not enabled to procure seeds or other means of reproducing the plant, and am not sufficiently a botanist to give you a technical description of them. I can give you the facts only, but these are of sufficient importance to awaken curiosity, and lead to the investigations of secrets by those more intimately connected with the subject treated of, and I think of sufficient importance to have that enquiry efficiently made under governmental auspices.

The colors most admired by the Camanches and Navajoes are crimson, blue, purple and green; consequently these colors are the most common among them in all their shades; and though in their weavings they blend these with brown, yellow and other colors, with singular judgment and taste, yet it is the brilliancy of those that you most admire.

All their primitive colors are the products of the prairie and mountain flowers, and their semi-colors are composed of these and the inner bark and roots of but few other plants combined in such proportions as the hue intended to be produced. They have no mineral dyes that I am aware of. Many of these flowers are small, indeed most of them; and the plants of low size, and begin to bloom in February, March and April, and continue till summer. During the blooming, the flowers are gathered early in the morning, with the dew upon them, and dried of the dew under a shade. The leaves are carefully picked off, the stems and such as have their petals covered with pollen of another color —*e. g.*— such as are purple or scarlet with petals of yellow or white pollen, are carefully separated from it. Particular flowers only are selected: all flowers of purple color are not used to dye purple, and so of every other color, but such only as are known to make an indelible dye.

When the desired quantity of leaves are collected they are carefully and cleanly bruised and into them a small quantity of ley (I shall hereafter describe it) is put, but only enough to make

167: Peters T-5 (1843) 1877 NT13 Navaho NT13
Comanche NO6 ●

N C 386 281 415

a thick paste — which has the property of loosening the dye from the fabrics, and facilitating its extraction. A small bag shaped like a money purse, and but little larger, made of new dog skin, deer or wolf skin, tanned by the Indians in a manner peculiar to them, is used to compress the juice from the pulp. This bag, a foot or eighteen inches long and three or four inches wide, is half filled with the pulp. Two small handles of wood are stuck through the ends of the bag, about the length of a corkscrew handle, and used to grasp a firm hold, and as levers by which the bag is twisted until the juice is extracted through the pores of the skin, which are very open.

Whether extracted or not for immediate use, the dye is carefully bottled, in glass if it can be procured, or in small bladders, if glass is not to be had. I say small bladders, because if put away in large quantities, the dye sometimes spoils, they say, and produces dingy colors. When put away for future use the light is carefully excluded by overwrapping with skins, or any thing else, and generally buried in the ground under a shelter in which fire is not used, so as to exclude heat. The dyes, however, are generally used soon as extracted, as during the winter the women prepare their best wool, and have it ready in the spring and summer for the process of dying.

N C ● 386 824 ● 415

The pulp after compression is put into a small quantity of the same ley above spoken of, and permitted to remain several hours to extract any remaining dye that might be in it, and undergo the same squeezing process until no dye remains.

The ley is made with care of the ashes after burning, of the green wood of a shrub very similar to the *Auralia Spinosa*, if it be not the same of a stunted growth. So careful are they of procuring this ash unadulterated, that they have dry parcels of it laid by with which to ignite the green wood, that the ashes may not be commingled with those of other woods. The ley is usually made in a large gourd, well cleaned and dried, with the butt end cut off, and a small hole bored through the point of the neck to drip from. The gourd is three quarters filled with the ashes considerably compressed in it, and by a bale or handle suspended from a bar containing several of them. Each is then filled with

167: Peters T-5 (1843) 1877 NT13 Navaho NT13
Comanche NO6

rain or pure river water: the point is stopped, and the water allowed to remain on the ashes for a day and night, and then permitted to drip into the vessel placed to catch the ley.

This ley is a little colored, and is clarified by the same process of filtration through clean white sand, or sand that has been used for the same purpose before — when clarified, the ley is used as before stated, and especially to set the colors, which seems to be the principal use of it. It has no caustic quality after filtration, but an astringency peculiar to itself — rather a pungent than burning quality. It is sometimes used to dilute the darker dyes and produce lighter shades.

The wool to be dyed is washed in warm water until perfectly cleansed of the natural oil — using the root of a plant very abundant in Texas and southern New Mexico, as well as most of the southern states, of a very saponaceous quality, and known as the soap plant. In all their best fabrics — blankets, belts, leggings, etc., made of wool, their finest fleeces are used, and it is not unknown to many of our army officers and others, that the Navajoes give great attention to their management of sheep, and often produce fleeces almost or quite equal to the merino in fineness and softness of texture, by their skilful crosses and selections made after long and minute observations and care. A Camanche and Navajoe are as much delighted with the possession of a superior ram and ewe as of a fine horse, to the breeding of which they also give much attention. Von Thaer would not be more so with the possession of his finest buck. All their wool is dyed before spinning, and this is done by submerging it in the dye and letting it remain ten or fifteen days, the dye-pot being left covered: but during this soaking the wool is turned over once every day. Sometimes the lighter shades are imparted to the wool by soaking a shorter time — they say this produces a clearer tint. If not dark enough, the same process is repeated with fresh dye. I have been told by my guide, that the Camanches fumigate the wool after dying, over a smoke of the above described wood, to deepen the color, but I never saw it done.

Their green color is produced from the leaves of several plants, the juice of which is expressed in the same manner as from the flowers, and used in the same manner.

167: Peters T-5 (1843) 1877 NT13 Navaho NT13
Comanche NO6 ●

N C ● 386 824 ●

Their brown color is made from the inner bark, roots and nuts of the walnut and of other trees, much in the same manner as our farmer's wives now dye their wool for home-made jeans.

N C 283 386

After the dyeing is finished, the wool is dried in the shade, and when well dried, exposed to the sun for a few hours; the dyeing is then complete, and the wool ready for spinning, except sometimes, perhaps, not always, they oil the wool slightly, and diffuse the dampness through it by rubbing and rolling it in the hands. I do not know the precise object of this, but they say it works better. This does not impair the color, for washing restores them to their first brightness. It seems to be the peculiar quality of the *set* that gives the lasting brilliancy of the color. I have seen the Camanche blankets, after being used for months, and abused by being put under the saddle, saturated with sweat, rained upon, slept in upon the naked earth, and when carefully washed, present the colors again, as bright as newly dyed silk.

N C 283

The spinning is what you would call twisting the thread; this is done altogether by the fingers, and somewhat similar to the ancient distaff, though reversing the order of operation. The distaff was used to wrap the raw material upon, and the spool or quill was used not only to wind the thread upon, but as the spindle to twist it. The Camanches reverse this order, and use the raw material for the spindle, and the spool only to wind the thread upon. They use no distaff.

A CAMANCHE SPINNING.

C [291]

In spinning, a small portion of wool only is used at a time — a mess, say, of a quarter pound weight, and shaped like an egg, say four or five inches long, and two or three in diameter, is wrapped around with a string sufficiently tight to keep it together, but loose enough at the point to permit the wool to be drawn out for spinning the thread — a small stone, of an ounce or so in weight, is tied on the middle of a stick of about six inches in length